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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	G10-D085F
Plant ID No.:	025-00068
Applicant:	Greenbrier Smokeless Coal Mining, LLC
Facility Name:	Mountaineer I Prep Plant
Location:	Rupert, Greenbrier County, WV
SIC Codes:	1221 (Bituminous Coal & Lignite - Surface) 1222 (Bituminous Coal & Lignite - Underground)
NAICS Codes:	212111 (Bituminous Coal and Lignite Surface Mining) 212112 (Bituminous Coal Underground Mining)
Application Type:	Modification
Received Date:	August 19, 2015, October 7, 2016 (resubmittal)
Engineer Assigned:	Dan Roberts
Fee Amount:	$1,500
Date Received:	August 20, 2015
Applicant's Ad Date:	August 25, 2015
Newspaper:	*The West Virginia Daily News*
Complete Date:	February 10, 2017
UTM's:	Easting: 530.4736 km Northing: 4208.9947 km NAD83 Zone 17N
Lat/Lon Coordinates:	Latitude: 38.028144 Longitude: -80.652778 NAD83
Description:	Modification to do the following: add a Caterpillar C4.4 ACERT 173.5 hp emergency generator; replace the currently permitted Ford V6 4 Stroke OHV with a Cummins QSX15-G9 755 hp emergency generator; and delete direct ship screen SS-07 and the associated transfer points TP-55 and TP-56.

BACKGROUND

Greenbrier Smokeless Coal Mining, LLC owns and operates the existing Mountaineer I Prep Plant under current permit G10-D085E, which was approved on June 16, 2015. This facility was

sold to a new ownership group in the spring of 2013.

On August 19, 2015, Greenbrier Smokeless Coal Mining, LLC submitted modification application G10-D085F to add a Caterpillar C4.4 ACERT 173.5 hp emergency generator and replace the currently permitted Ford V6 4 Stroke OHV with a Cummins QSX15-G9 775 hp emergency generator. The application was later placed on hold pending the receipt and approval of application G10-D085G. On October 7, 2016, Greenbrier Smokeless Coal Mining, LLC submitted application G10-D085G for a Class I administrative update to remove direct ship screen SS-07 and associated transfer points TP55 and TP-56. On February 17, 2017, NSR Program Manager Bev McKeone directed the writer to combine applications G10-D085 F and G10-D085G into one application as G10-D085F. As a result, application G10-D085G would be deleted from the database, but it's date of receipt would be entered as an application resubmittal for G10-D085F. On February 17, 2017, the writer called Donna Toler of P & A Engineers and Consultants, Inc. and she was agreeable to combining the applications and processing them together.

Greenbrier Smokeless Coal Mining, LLC's existing wet wash coal preparation plant (G10-D085F) and raw coal screening plant (G10-D159) meet the definition of "Building, Structure, Facility, or Installation" in 45CSR14.2.10 and "Major Source" in 45CSR30.2.26 and shall be considered as one facility for determining applicability to 45CSR14 (PSD) and 45CSR30 (Title V). Therefore, Greenbrier Smokeless Coal Mining, LLC's existing wet wash coal preparation plant (G10-D085F) and raw coal screening plant (G10-D159) shall be combined when determining applicability and share the common facility ID Number of 025-00068.

DESCRIPTION OF PROCESS (taken directly from the application)

The Mountaineer I Mine is located in a remote area off Anjean Road in Greenbrier County. Greenbrier Smokeless proposes to leave the portable pea coal system in this permit as well as on the Pollock Surface Mine because of a flaw in the preparation plant which may prohibit plant production of pea coal. Therefore, if the plant is unable to produce the correct size, the portable system would be moved to the plant to aid in separation and sizing.

Raw coal will be fed to the screening building which houses screen SS-01(FW) and SS-02(FW) from the underground mine belts BC-01(PE) @ TP-01(TC-FE) and TP-02(TC-FW) and BC-15(PE) and BC-16(PE) @ TP-05(TC-FE), TP-06(TC-FE), and TP-07(TC-FW). Coal from screens SS-01 and SS-02 discharge to raw coal belt BC-02(PE) at TP-04(TC-FE) and TP-09(TC-FE) for transfer to open storage pile OS-01(SW-WS) @ TP-14(TC-PE).

Reject from screens SS-01 and SS-02 transfers via belt BC-03(PE) to open storage pile OS-03(SW-WS) and cleaned up as maintenance by front-end loader @ TP-03(RC-FW0, TP-08(TC-FW), TP-10(TC-MDH) and TP-11(LO-MDH). Belt BC-14(PE), previously proposed and not yet constructed, will transfer reject from belt BC-03 to refuse belt BC-12(PE) @ TP-12(TC-FE) and TP-13(TC-FE).

Trucked in raw coal will be received at truck dump bin BS-02(PW) @ TP-15(UD-PW); to

screen SS-04(FW) @ TP-16(TC-FW). Screen SS-04 discharges reject via chute to open storage pile OS-04(SW-WS) which is cleaned up as maintenance by front-end loader @ TP-17(TC-MDH) and TP-18(LO-MDH). Screen SS-04 can transfer directly to belt BC-06(PW) @ TP-19(TC-FW) or to crusher CR-02(FW) @ TP-20(TC-FW) and to belt BC-06 @ TP-21(TC-FW). Belt BC-06 will then transfer coal to open storage pile OS-02(SW-WS) @ TP-22(TC-PE).

Raw coal from OS-02 and OS-01 is reclaimed underpile to belt BC-07(PE) @ TP-23(Lo-UC), TP-24(LO-UC) and fed to the in-plant screens SS-05(FW) and SS-06(FW) and wet wash @ TP-25(TC-FW) thru TP-28(TC-FW). Load-in to OS-01 and OS-02 are controlled by stacking tubes.

Plant clean coal transfers to open storage pile OS-05(SW-WS) via belt BC-08(PE) @ TP-29(TC-FE) and TP-30(TC-PE); reclaim underpile to belt BC-09(PE) @ TP-31(LO-UC); transfer to open storage pile OS-06(SW-WS) @ TP-32(TC-PE); to belt BC-10(PE) @ TP-33(TC-FE); and to open storage pile OS-07(SW-WS) @ TP-34(TC-PE). Clean coal can also be received to open storage pile @ TP-35(UL-MDH). The clean coal will reclaim underpile to the loadout belt BC-11(PE) @ TP-36(LO-UC) and TP-37(LO-UC) where it is sent to rail via the batch weigh system BS-05(FE) and BS-06(FE) @ TP-38(TC-FE) thru TP-40(LR-TC).

Registration G10-D085D approved Greenbrier Smokeless to construct a portable pea coal screening system: clean coal will be transferred from existing stockpile OS-05 to receiving bin BS-08(PW) @ TP-60(UD-PW); to belt BC-19(PE) @ TP-61(TC-FE); to screen SS-08(PW) @ TP-62(TC-PW); to belt BC-20(NC) @ TP-63(TC-FW); to stockpile OS-12(SW-WS) @ TP-64(TC-MDH); to belt BC-21(NC) @ TP-65(TC-FW); to stockpile OS-13(SW-WS) @ TP-66(TC-MDH; to belt BC-22(NC) @ TP-67(TC-FW); to stockpile OS-14(SW-WS) @ TP-68(TC-MDH; and will be reclaimed underpile to existing belt BC-09.

Coarse refuse is transferred to open storage pile OS-08(SW-WS) via belt BC-12(PE) @ TP-41(TC-FE) and TP-45(TC-MDH). A sand and lime mixture used for refuse treatment is dumped to open storage pile OS-10(SW-WS) @ TP-42(UL-MDH) and loaded to bin BS-03(PW) @ TP-43(UD-PW). The bin discharges to belt BC-12 @ TP-44(TC-PE). The refuse material is transferred from the open storage pile to the disposal area by truck @ TP-46(LO-MDH) and TP-47(UL-MDH).

Fine or caked refuse transfers from the plant to open storage pile OS-09(SW-WS) via belt BC-13(PE) @ TP-48(TC-FE) and TP-49(TC-MDH). The refuse material is transferred from the open storage pile to the disposal area by truck @ TP-50(LO-MDH) and TP-51(UL-MDH).

Greenbrier Smokeless proposed and constructed a direct ship truck dump adjacent to the preparation plant in modification registration G10-D085D in 2014. Coal will be received by truck at bin BS-07(PW) @ TP-52(UD-PW); transfer to belt BC-17(PE) @ TP-53(TC-FE); and to crusher CR-03(FW) @ TP-54(TC-~~FW~~ FE). Coal from crusher CR-03 will transfer to belt BC-18(PE) @ TP-57(TC-FW); to stockpile OS-11(SW-WS) @ TP-58(TC-MDH); and to existing belt BC-09 under pile @ TP-59(LO-UC).

Within application G10-D085E, Greenbrier Smokeless proposes to construct a permanent pea coal belt conveyor BC-23(PE). Pea coal will exit the plant via a chute to stacker belt BC-23(PE) @ TP-70(TC-FW) and transfer to one of four separate stockpiles OS-15(SW-WS) @ TP-71(TC-

MDH), OS-16(SW-WS) @ TP-73(TC-MDH), OS-17(SW-WS) @ TP-75(TC-MDH) or OS-18(SW-WS) @ TP-77(TC-MDH). From these stockpiles, the pea coal will be loaded to trucks @ TP-72(LO-MDH), @ TP-74(LO-MDH), @ TP-76(LO-MDH) and @ TP-78(LO-MDH) for shipment from the facility.

Truck dump BS-01, belt BC-04, screen SS-03, crusher CR-01, and belt BC-05 have been retired in place and will be removed from the property.

The facility shall be modified and operated in accordance with the following equipment and control device information taken from registration application G10-D085F and any amendments thereto:

Equip-ment ID No.	Date of Construction, Reconstruction or Modification [1]	G10-D Applicable Sections [2]	Emission Unit Description	Maximum Permitted Throughput		Control Device [3]	Associated Transfer Points		
				TPH	TPY		Location: B -Before A -After	ID No.	Control Device [3]
Direct Ship Coal Circuit									
BS-07	C 2014	5 and 8	Truck Dump Bin - 100 ton capacity - receives direct ship coal from trucks and then drops it onto BC-17	600	5,256,000	PW	B A	TP-52 TP-53	UD-PW TC-FE
BC-17	C 2014	5 and 8	Belt Conveyor - receives direct ship coal from BS-07 and transfers it to CR-03	600	5,256,000	PE	B A	TP-53 TP-54	TC-FE TC-FE
CR-03	C 2014	5 and 8	Double Roll Crusher - receives oversize direct ship coal from BC-17, crushes it to 4"x0 and then drops it onto BC-18	600	5,256,000	FW	B A	TP-54 TP-57	TC-FE TC-FW
BC-18	C 2014	5 and 8	Belt Conveyor - receives sized direct ship coal from CR-03 and transfers it to OS-11	600	5,256,000	PE	B A	TP-57 TP-58	TC-FW TC-MDH
OS-11	C 2014	5 and 8	Sized Direct Ship Coal Open Storage Pile - 25,000 ton capacity - maximum base area of 38,869 ft^2 and 60' height - receives sized direct ship coal from BC-06 via stacking tube, stores it and then underpile reclaim feeders drop it onto BC-07 (see Clean Coal Circuit below)	600	5,256,000	WS	B A	TP-58 TP-59	TC-MDH LO-UC
OS-11	C 2014	5 and 8	Sized Direct Ship Coal Open Storage Pile - 25,000 ton capacity - maximum base area of 38,869 ft^2 and 60' height - receives sized direct ship coal from BC-06 via stacking tube, stores it and then underpile reclaim feeders drop it onto BC-07 (see Clean Coal Circuit below)	600	5,256,000	WS	B A	TP-58 TP-59	TC-MDH LO-UC
Trucked Raw Coal Circuit									
BS-02	M 2013 C Dec. 2007	5 and 8	Truck Dump Bin - 75 ton capacity - receives raw coal from trucks and then drops it into SS-04	600	5,256,000	PW	B A	TP-15 TP-16	LO-UC TC-FE
SS-04	M 2013 C Dec. 2007	5 and 8	Single Deck Screen - receives raw coal from BS-02, sizes it and pass through coal transfers onto BC-06 and oversize material transfers to OS-04 or CR-02	600	5,256,000	FW	B A A A	TP-16 TP-19 TP-17 TP-20	TC-FW TC-FW TC-MDH TC-FW
OS-04	M 2013 C Dec. 2007	5 and 8	Oversized Material Open Storage Pile - 50 ton capacity - maximum base area of 100 ft^2 and 15' height - receives oversized material from SS-04, stores it and then a front-endloader transfers it to OS-08 (see Refuse Circuit below)	60	525,600	WS	B A	TP-17 TP-18	LO-UC TC-FE
CR-02	C 2013	5 and 8	Double Roll Crusher - receives oversize raw coal from SS-04, crushes it to 4"x0 and then drops it onto BC-06	600	5,256,000	FW	B A	TP-20 TP-21	TC-FW TC-FW

Equip-ment ID No.	Date of Construction, Reconstruction or Modification [1]	G10-D Applicable Sections [2]	Emission Unit Description	Maximum Permitted Throughput		Control Device [3]	Associated Transfer Points		
				TPH	TPY		Location: B -Before A -After	ID No.	Control Device [3]
BC-06	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives sized raw coal from SS-04 and CR-02 and transfers it to OS-02	600	5,256,000	PE	B B A	TP-19 TP-21 TP-22	TC-FW TC-FW TC-PE
OS-02	M 2013 C Dec. 2007	5 and 8	Raw Coal Open Storage Pile - 20,000 ton capacity - maximum base area of 88,869 ft^2 and 90' height - receives raw coal from BC-06 via stacking tube, stores it and then underpile reclaim feeders drop it onto BC-07 (see Deep Mined Raw Coal Circuit below)	600 in 700 out	5,256,000	WS	B A	TP-22 TP-23	TC-PE LO-UC
Deep Mine Raw Coal Circuit									
BC-01	M 2013 C Nov. 2008	5 and 8	Belt Conveyor - transfers raw coal from the #1 Mine Portal to SS-01 inside the Screening Building	700	6,132,000	PE	B A	TP-01 TP-02	TC-FE TC-FW
SS-01	M 2013 C Dec. 2007	5 and 8	Single Deck Screen - receives raw coal from BC-01, scalps it passing only 2"X0 onto BC-02, while the scalped rock drops onto BC-03 (see below)	700	6,132,000	FW	B A A	TP-02 TP-03 TP-04	TC-FW TC-FW TC-FE
BC-15	M 2013 C 2011 *	5 and 8	Belt Conveyor - transfers raw coal from the #3 Mine Portal to BC-16 (Constructed in 2011, but not permitted until 2013)	700	6,132,000	PE	B A	TP-05 TP-06	TC-FE TC-FE
BC-16	M 2013 C 2011 *	5 and 8	Belt Conveyor - transfers raw coal from BC-15 to SS-02 inside the Screening Building (Constructed in 2011, but not permitted until 2013)	700	6,132,000	PE	B A	TP-06 TP-07	TC-FE TC-FW
SS-02	M 2013 C Dec. 2007	5 and 8	Single Deck Screen - receives raw coal from BC-16, scalps it passing only 2"X0 onto BC-02, while the scalped rock drops onto BC-03	700	6,132,000	FW	B A A	TP-07 TP-08 TP-09	TC-FW TC-FW TC-FE
BC-03	C Dec. 2007	5 and 6	Belt Conveyor - receives scalped rock from SS-01 and SS-02 and transfers it to OS-03 or BC-14 (In 2013, the maximum throughputs were decreased from 100 TPH and 876,000 TPY to 70 TPH and 613,000 TPY)	70	613,000	PE	B B A A	TP-03 TP-08 TP-10 TP-12	TC-FW TC-FW TC-MDH TC-FE
OS-03	M 2013 C Dec. 2007	5 and 8	Scalped Rock Open Storage Pile - 50 ton capacity - maximum base area of 100 ft^2 and 15' height - receives scalped rock from BC-03, stores it and then an endloader transfers it to OS-08	----	613,200	WS	B A	TP-10 TP-11	TC-MDH LO-MDH
BC-14	Proposed 2010 *	5 and 8	Belt Conveyor - transfers scalped rock from BC-03 and transfers it to OS-08 (*Permitted in 2010, but not yet constructed as of May 2015)	70	613,000	PE	B A	TP-12 TP-13	TC-FE TC-FE
BC-02	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives sized raw coal from SS-01 and SS-02 and transfers it to OS-01 via stacking tube	700	6,132,000	PE	B B A	TP-04 TP-09 TP-14	TC-FE TC-FE TC-PE
OS-01	M 2013 C Dec. 2007	5 and 8	Raw Coal Open Storage Pile - 60,000 ton capacity - maximum base area of 88,869 ft^2 and 90' height - receives raw coal from BC-02, stores it and then underpile reclaim feeders drop it onto BC-07	----	6,132,000	WS	B A	TP-14 TP-16	TC-PE LO-UC
BC-07	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives raw coal from OS-02 (see Trucked Raw Coal Circuit above) and OS-01 and transfers it to SS-05 or SS-06 located within the prep plant building	700	6,132,000	PE	B A	TP-23 TP-24 TP-25	LO-UC LO-UC TC-FW
SS-05	M 2013 * C Dec. 2007	5 and 8	Single Deck Screen - receives raw coal from BC-07, sizes it and then transfers it to the wet wash circuit (*Constructed in 2007, but not permitted until 2013)	350	3,066,000	FW	B A	TP-25 TP-26	TC-FW TC-FW

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				TPH	TPY		Location: B -Before A -After	ID No.	Control Device [3]
SS-06	M 2013 * C Dec. 2007	5 and 8	Single Deck Screen - receives raw coal from BC-07, sizes it and then transfers it to the wet wash circuit (*Constructed in 2007, but not permitted until 2013)	350	3,066,000	FW	B A	TP-27 TP-28	TC-FW TC-FW
Magnetite Circuit									
BS-04	C Dec. 2007	-----	Magnetite Bin - 100 ton capacity - receives magnetite from trucks, stores it and then it is used in the wet wash circuit. This process utilizes a closed loop system that vents to a water filled sump.	----	500	FW	B A	N/A N/A	N/A N/A
Clean Coal Circuit									
BC-08	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives sized clean coal from the wet wash circuit and transfers it to OS-05	500	4,380,000	PE	B A	TP-29 TP-30	TC-PE TC-PE
OS-05	M 2013 C Dec. 2007	5 and 8	Clean Coal Open Storage Pile - 45,000 ton capacity - maximum base area of 88,869 ft^2 and 90' height - receives clean coal from BC-08, stores it and then it is reclaimed underpile to BC-09	500 in 800 out	4,380,000	WS	B A	TP-30 TP-31	TC-PE LO-UC
BC-09	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives clean coal from OS-05, OS-11, OS-12, OS-13 and OS-14 and transfers it to OS-06 or BC-10	800	4,380,000	PE	B A A	TP-31 TP-32 TP-33	LO-UC TC-PE TC-FE
OS-06	M 2013 C Dec. 2007	5 and 8	Clean Coal Open Storage Pile - 45,000 ton capacity - maximum base area of 88,869 ft^2 and 90' height - receives clean coal from BC-09 via stacking tube and from trucks, stores it and then it is reclaimed underpile to BC-11 (see below)	800 in 4,000 out	4,380,000	WS	B B A	TP-32 TP-35 TP-36	TC-PE UL-MDH LO-UC
BC-10	C Dec. 2007	5 and 6	Belt Conveyor - receives clean coal from BC-09 and transfers it to OS-07 via stacking tube (In 2013, the maximum throughputs were decreased from 100 TPH and 876,000 TPY to 70 TPH and 613,000 TPY)	800	4,380,000	PE	B A	TP-33 TP-34	TC-FE TC-PE
OS-07	M 2013 C Dec. 2007	5 and 8	Clean Coal Open Storage Pile - 45,000 ton capacity - maximum base area of 88,869 ft^2 and 90' height - receives clean coal from BC-10 via stacking tube and from trucks, stores it and then it is reclaimed underpile to BC-11	800 in 4,000 out	4,380,000	WS	B B A	TP-34 TP-35 TP-37	TC-PE UL-MDH LO-UC
BC-11	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - reclaims clean coal from OS-06 and OS-07 and transfers it to BS-05	4,000	5,380,000	FE	B B A	TP-36 TP-37 TP-38	LO-UC LO-UC TC-FE
BS-05	M 2013 C Dec. 2007	5 and 8	Clean Coal Weigh Batch Bin - 440 ton capacity - receives clean coal from BC-11, weighs it and then drops it to BS-06	4,000	5,380,000	FE	B A	TP-38 TP-39	TC-FE TC-FE
BS-06	M 2013 C Dec. 2007	5and 8	Clean Coal Railcar Loadout Bin - 220 ton capacity - receives clean coal from BS-05 and loads it to railcars through a telescopic chute	4,000	5,380,000	FE	B A	TP-39 TP-40	TC-FE LR-TC
Pea Coal Circuit									
BS-08	C 2014	5 and 8	Endloader Feed Bin - 30 ton capacity - receives clean coal from OS-05 via an endloader and then drops it onto BC-19	200	1,752,000	PW	B A	TP-60 TP-61	UD-PW TC-FE
BC-19	C 2014	5 and 8	Belt Conveyor - receives clean coal from BS-08 and transfers it to SS-08	200	1,752,000	PE	B A	TP-61 TP-62	TC-FE TC-PW
SS-08	C 2014	5 and 8	Triple Deck Screen - receives clean coal from BC-19, sizes it and oversize coal drops onto BC-20, pea coal onto BC-21 and undersize coal onto BC-22	200	1,752,000	PW	B A A A	TP-62 TP-63 TP-65 TP-67	TC-PW TC-FW TC-FW TC-FW
BC-20	C 2014	5 and 8	Belt Conveyor - receives oversize clean coal from SS-08 and transfers it to OS-12	100	584,000	N	B A	TP-63 TP-64	TC-FW TC-MDH

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				TPH	TPY		Location: B -Before A -After	ID No.	Control Device [3]
OS-12	C 2014	5 and 8	Oversize Clean Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 20' height - receives oversize clean coal from BC-20, stores it and then underpile reclaim feeders drop it onto BC-09 (see Clean Coal Circuit above) (*Combined between OS-12, OS-13 and OS-14)	100 in 200 out*	584,000	WS	B A	TP-64 TP-69	TC-MDH LO-UC
BC-21	C 2014	5 and 8	Belt Conveyor - receives clean pea coal from SS-08 and transfers it to OS-13	100	584,000	N	B A	TP-65 TP-66	TC-FW TC-MDH
OS-13	C 2014	5 and 8	Clean Pea Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 20' height - receives clean pea coal from BC-21, stores it and then underpile reclaim feeders drop it onto BC-09 (see Clean Coal Circuit above) (*Combined between OS-12, OS-13 and OS-14)	100 in 200 out*	584,000	WS	B A	TP-66 TP-69	TC-MDH LO-UC
BC-22	C 2014	5 and 8	Belt Conveyor - receives undersize clean coal from SS-08 and transfers it to OS-13	100	584,000	N	B A	TP-67 TP-68	TC-FW TC-MDH
OS-14	C 2014	5 and 8	Undersize Clean Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 20' height - receives undersize clean coal from BC-22, stores it and then underpile reclaim feeders drop it onto BC-09 (see Clean Coal Circuit above) (*Combined between OS-12, OS-13 and OS-14)	100 in 200 out*	584,000	WS	B A	TP-68 TP-69	TC-MDH LO-UC
Permanent Pea Coal Circuit									
BC-23	C 2015	5 and 8	Stacking Belt Conveyor - receives clean pea coal from the wet wash circuit and transfers it to OS-15, OS-16, OS-17 or OS-18	200	1,752,000	PE	B A A A A	TP-70 TP-71 TP-72 TP-72 TP-74	TC-FW TC-MDH TC-MDH TC-MDH TC-MDH
OS-15	C 2015	5 and 8	Pea Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 30' height - receives clean pea coal from BC-23, stores it and then a front endloader loads it to trucks for shipment from the facility	50	438,000	WS	B A	TP-71 TP-72	TC-MDH LO-MDH
OS-16	C 2015	5 and 8	Pea Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 30' height - receives clean pea coal from BC-23, stores it and then a front endloader loads it to trucks for shipment from the facility	50	438,000	WS	B A	TP-73 TP-74	TC-MDH LO-MDH
OS-17	C 2015	5 and 8	Pea Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 30' height - receives clean pea coal from BC-23, stores it and then a front endloader loads it to trucks for shipment from the facility	50	438,000	WS	B A	TP-75 TP-76	TC-MDH LO-MDH
OS-18	C 2015	5 and 8	Pea Coal Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 30' height - receives clean pea coal from BC-23, stores it and then a front endloader loads it to trucks for shipment from the facility	50	438,000	WS	B A	TP-77 TP-78	TC-MDH LO-MDH
Refuse Circuit									
OS-10	C Dec. 2007	-----	Sand and Lime Open Storage Pile - 5,000 ton capacity - maximum base area of 8,869 ft^2 and 15' height - receives sand and lime from trucks, stores it and then a front-endloader transfers it to BS-03	6	52,500	WS	B A	TP-42 TP-43	LO-MDH UD-PW

Equip-ment ID No.	Date of Construction, Reconstruction or Modification [1]	G10-D Applicable Sections [2]	Emission Unit Description	Maximum Permitted Throughput		Control Device [3]	Associated Transfer Points		
				TPH	TPY		Location: B -Before A -After	ID No.	Control Device [3]
BS-03	C Dec. 2007	-----	Sand and Lime Bin - 30 ton capacity - receives sand and lime from OS-10 via a front-endloader and drops it onto BC-12	6	52,560	PW	B A	TP-43 TP-44	UD-PW TC-PE
BC-12	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives oversize rock from BC-14, refuse from the wet wash circuit and sand and lime from BS-03 and transfers it to OS-08.	500	4,380,000	PE	B B B A	TP-13 TP-41 TP-44 TP-45	TC-FE TC-FE TC-PE TC-MDH
OS-08	M 2013 C Dec. 2007	5 and 8	Refuse Open Storage Pile - 15,000 ton capacity - maximum base area of 28,869 ft^2 and 35' height - receives refuse and sand and lime from BC-12 and oversize rock from OS-03 and OS-04 via a front-endloader, stores it and then a front-end loader transfers it to trucks for delivery to the refuse area	500	4,380,000	WS	B B B A A	TP-45 TP-11 TP-18 TP-46 TP-47	TC-MDH LO-MDH LO-MDH LO-MDH UL-MDH
BC-13	M 2013 C Dec. 2007	5 and 8	Belt Conveyor - receives fine refuse from the wet wash circuit and transfers it to OS-09	200	1,752,000	PE	B A	TP-48 TP-49	TC-FE TC-MDH
OS-09	M 2013 C Dec. 2007	5 and 8	Fine Refuse Open Storage Pile - 7,500 ton capacity - maximum base area of 18,869 ft^2 and 25' height - receives fine refuse from BC-13, stores it and then a front-end loader transfers it to trucks for delivery to refuse area	200	1,752,000	WS	B A A	TP-49 TP-50 TP-51	TC-MDH LO-MDH UL-MDH

[1] In accordance with 40 CFR 60 Subpart Y, coal processing and conveying equipment, coal storage systems, and coal transfer and loading systems constructed, reconstructed, or modified on or before April 28, 2008 shall not discharge gases which exhibit 20 percent opacity or greater. Coal processing and conveying equipment, coal storage systems, and coal transfer and loading systems constructed, reconstructed, or modified after April 28, 2008 shall not discharge gases which exhibit 10 percent opacity or greater. For open storage piles constructed, reconstructed, or modified after May 27, 2009, the permittee shall prepare and operate in accordance with a fugitive coal dust emissions control plan that is appropriate for site conditions.

[2] All registered affected facilities under Class II General Permit G10-D are subject to Sections 1.0, 1.1, 2.0, 3.0 and 4.0.

[3] Control Device Abbreviations: FE - Full Enclosure; FE, WS - Full Enclosure with Water Sprays; PE - Partial Enclosure; PE, WS - Partial Enclosure with Water Sprays; WS - Water Sprays; TC - Telescopic Chute; and NC - No Control.

Reciprocating Internal Combustion Engines

Emission Unit ID No.	Emission Unit Description (Make, Model, Serial No., etc.)	Year Manufactured/ Reconstructed	Year Installed/ Modified	Design Capacity (Bhp/rpm)
Gen Set-1	Generac OHVI V-Twin (Propane)	2009	2009	32 / 3,600
Gen Set-2	Cummins QSX15-G9 (No. 2 Fuel Oil)	2013	2015	755 / 1,800
Gen Set-3	Caterpillar 4FN02046 (No. 2 Fuel Oil)	2009	2009	2,628 / 1,800
Gen Set-4	Caterpillar C4.4 (No. 2 Fuel Oil)	2009	2015	173.5 / 1,800

Reciprocating Internal Combustion Engines (R.I.C.E.) Information

Emission Unit ID No.	Subject to 40CFR60 Subpart IIII?	Subject to 40CFR60 Subpart JJJJ?	Subject to Sections 9.1.4/9.2.1 (Catalytic Reduction Device)
Gen Set-1	No	Yes	No
Gen Set-2	Yes	No	No
Gen Set-3	Yes	No	No
Gen Set-4	Yes	No	No

Storage Tanks

Source ID No.	Status	Content	Design Capacity			Orientation	G10-D Applicable Sections
			Volume	Diameter	Throughput		
T1	EXIST	Diesel	1,000	4	8,000	HORZ	10
T2	EXIST	Diesel	500	4	3,000	HORZ	10
T3	EXIST	Nalco 8800	5,000	6	5,000	VERT	10
T4	EXIST	Nalco 8800	5,000	6	5,000	VERT	10
T5	EXIST	Nalco 8800	5,500	6	5,000	VERT	10
T6	EXIST	Nalco 8800	5,500	6	5,000	VERT	10
T7	EXIST	Diesel	3,000	5.5	12,000	HORZ	10
T8	EXIST	Kerosene	500	4	2,000	HORZ	10
T9	EXIST	Diesel	2,000	6	8,000	HORZ	10
T10	EXIST	Diesel	500	4	2,000	HORZ	10
T11	EXIST	Diesel	500	4	2,000	HORZ	10
T12	EXIST	Cationic Floc	5,000	6	30,000	VERT	10
T13	EXIST	Anionic Floc	5,000	6	30,000	VERT	10

ADDITIONAL EMISSION SOURCES

The facility now has four (4) emergency standby generators and thirteen (13) storage tanks for liquids (Diesel, Anti-freeze, Kerosene, etc.). Each emergency generator is to be operated no more than 500 hours per year for the purpose of providing back-up electrical supply to critical plant components. The applicant proposes to utilize a 2009 Generac OHVI V-Twin (Gen Set-1) as backup power for their Communications Trailer, a 2013 Cummins QSX15-G9 (Gen Set-2) as backup power for their Shaft/Escape Hoist, a 2009 Caterpillar FN02046 (Gen-Set-3) as backup power for the ventilation fan and a 2009 Caterpillar C4.4 (Gen Set-4). Gen Set-1 utilizes spark ignition and propane as fuel. Gen Set-2 is an EPA Tier 4 Certified, compression ignition ICE using No. 2 Fuel Oil. Gen Set-3 is an EPA Tier 2 Certified, compression ignition ICE using No. 2 Fuel Oil. Gen Set-4 is an EPA Tier 3 Certified, compression ignition ICE using No. 2 Fuel Oil.

DESCRIPTION OF FUGITIVE EMISSIONS (taken directly from the application)

Potential sources of fugitive particulate emissions for this facility include emissions, which are not captured by pollution control equipment and emissions from open stockpiles and vehicular traffic on paved and unpaved haulroads and work areas. The haulroads and work areas will be controlled by water truck in accordance with section E.6.c.i. of the General Permit.

The water truck is equipped with pumps sufficient to maintain open stockpiles, haulroads and work areas. The water truck will be operated three times daily, and more as needed in dry periods. An additive to prevent freezing will be utilized in the winter months when freezing conditions are present.

SITE INSPECTION

On July 29, 2015, Fred Teel of the DAQ's Compliance and Enforcement Section performed a scheduled full on-site targeted inspection. Mr. Teel's contact at the facility was Joseph C. Turley, III. At the time of the inspection, the facility was found to be in compliance and was given a status code of 30 - In Compliance.

Directions to the facility from Charleston are to take I-77 South/I-64 East toward Beckley and travel 53.9 miles, keep left and take I-63 East toward Lewisburg and travel 37.0 miles, take Exit 156 for US-60/Midland Trail toward Sam Black Church and travel 0.3 miles, turn left onto US-60 and travel 6.0 miles to Rupert, turn right onto County Route CR1 Anjean Road/Church Street) and travel 0.4 miles, Church Street becomes McClung Avenue and travel 0.4 miles, McClung Avenue becomes Anjean Road and travel approximately 4 miles and the plant entrance will be on the left side of the road.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Fugitive emission calculations for continuous and batch drop operations, transfer points, crushing and screening, storage piles, and paved and unpaved haulroads are based on AP-42 Fifth Edition "Compilation of Air Pollution Emission Factors", Volume 1. Control efficiencies were applied based on "Calculation of Particulate Matter Emission - Coal Preparation Plants and Material Handling Operations." The emission factors for crushing/breaking and screening operations were obtained from the Air Pollution Engineering Manual - Air & Waste Management Association - June 1992. The calculations were performed by the applicant's consultant using the DAQ's G10-C Excel Emission Calculation Spreadsheet and were checked for accuracy and completeness by the writer. The change in emissions calculations were performed by the writer using the DAQ's G10-C Excel Emission Calculation Spreadsheet and a copy is attached.

The proposed modification of the wet wash coal preparation plant will result in a *decrease* in the potential to discharge controlled particulate matter emissions of -5.91 pounds per hour (lb/hour) and -26.76 tons per year (TPY) of particulate matter (PM), of which -2.67 lb/hour and -12.55 TPY will be particulate matter less than 10 microns in diameter (PM_{10}). Refer to the following table for a complete summary of the modified facility's potential to discharge:

- Decrease in Emissions - **Greenbrier Smokeless Coal Mining, LLC Mountaineer I Prep Plant - G10-D085F**	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Open Storage Pile Emissions	0.00	0.00	0.00	0.00
Unpaved Haulroad Emissions	0.00	0.00	0.00	0.00
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	*0.00*	*0.00*	*0.00*	*0.00*
Point Source Emissions				
Equipment Emissions	-6.00	-26.28	-2.82	-12.35
Transfer Point Emissions	-0.12	-0.53	-0.06	-0.25
Generators	0.21	0.05	0.21	0.05
Point Source Emissions Total (PTE)	*-5.91*	*-26.76*	*-2.67*	*-12.55*
DECREASE IN EMISSIONS	**-5.91**	**-26.76**	**-2.67**	**-12.55**

The proposed modification of the wet wash coal preparation plant will result in a new potential to discharge controlled particulate matter emissions of 452.06 lb/hour and 1,965.76 TPY of PM, of which 138.84 lb/hour and 599.63 TPY will be PM_{10}. Refer to the following table for a complete summary of the modified facility's potential to discharge:

- New Emissions Total - **Greenbrier Smokeless Coal Mining, LLC Mountaineer I Prep Plant - G10-D085F**	**Controlled PM Emissions**		**Controlled PM_{10} Emissions**	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
Open Storage Pile Emissions	0.63	2.78	0.30	1.31
Unpaved Haulroad Emissions	408.53	1,789.70	118.07	517.23
Paved Haulroad Emissions	0.43	1.90	0.08	0.37
Fugitive Emissions Total	*409.60*	*1,794.38*	*118.45*	*518.91*
Point Source Emissions				
Equipment Emissions	33.40	146.29	15.70	68.76
Transfer Point Emissions	8.30	24.90	3.92	11.78
Generators	0.77	0.19	0.77	0.19
Point Source Emissions Total (PTE)	*42.47*	*171.38*	*20.39*	*80.73*
EMISSIONS TOTAL	**452.06**	**1,965.76**	**138.84**	**599.63**

Maximum controlled emissions from Greenbrier Smokeless Coal Mining, LLC's one (1) propane fired emergency generator (Gen Set-1) and three (3) diesel fired generators (Gen Set-2, Gen Set-3 and Gen Set-4) are summarized in the table below. G10-D limits each generator to 500 hours per year of operation. The emissions calculations for Gen Set-1 and Gen Set-3 were performed by the consultant for application G10-D085A and the emissions calculations for Gen Set-2 and Gen Set-4 were performed by the writer and a copies are attached.

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (TPY)
Gen Set - 1	2009 Generac OHVI V-Twin 32 hp (24 kW) Propane	Nitrogen Oxides (NO_X)	0.03	0.01
		Carbon Monoxide (CO)	0.02	< 0.01
		Volatile Organic Compounds (VOC)	< 0.01	< 0.01
		Particulate Matter <10 microns (PM_{10})	< 0.01	< 0.01
		Sulfur Dioxide (SO_2)	0.00	0.00
		Total HAPs	0.28	0.07
Gen Set - 2	2013 Cummins QSX15-G9 - 755 hp (563 kW) - No. 2 Fuel Oil	Nitrogen Oxides (NO_X)	4.35	1.09
		Carbon Monoxide (CO)	4.35	1.09
		Volatile Organic Compounds (VOC)	0.50	0.12
		Particulate Matter <10 microns (PM_{10})	0.12	0.03
		Sulfur Dioxide (SO_2)	0.01	< 0.01
		Total HAPs	0.01	< 0.01
Gen Set - 3	2009 Caterpillar 4FN02046 - 2,628 hp (1,960 kW) No. 2 Fuel Oil	Nitrogen Oxides (NO_X)	35.91	8.98
		Carbon Monoxide (CO)	5.19	1.30
		Volatile Organic Compounds (VOC)	1.73	0.43
		Particulate Matter <10 microns (PM_{10})	0.56	0.14
		Sulfur Dioxide (SO_2)	0.85	0.21
		Total HAPs	0.03	0.01
Gen Set - 4	2009 Caterpillar C4.4 173.5 hp (130 kW) No. 2 Fuel Oil	Nitrogen Oxides (NO_X)	1.14	0.28
		Carbon Monoxide (CO)	1.43	0.36
		Volatile Organic Compounds (VOC)	0.43	0.11
		Particulate Matter <10 microns (PM_{10})	0.09	0.02
		Sulfur Dioxide (SO_2)	0.36	0.09
		Total HAPs	< 0.01	< 0.01
Total Combined Emissions		Nitrogen Oxides (NO_X)	86.57	21.64
		Carbon Monoxide (CO)	19.77	4.94
		Volatile Organic Compounds (VOC)	2.81	0.70
		Particulate Matter <10 microns (PM_{10})	2.74	0.68
		Sulfur Dioxide (SO_2)	0.39	0.10
		Total HAPs	0.32	0.08

Greenbrier Smokeless Coal Mining, LLC's existing wet wash coal preparation plant (G10-D085F) and raw coal screening plant (G10-D159) meet the definition of "Building, Structure, Facility, or Installation" in 45CSR14.2.10 and "Major Source" in 45CSR30.2.26 and shall be considered as one facility for determining applicability to 45CSR14 (PSD) and 45CSR30 (Title V). Therefore, Greenbrier Smokeless Coal Mining, LLC's existing wet wash coal preparation plant (G10-D085F) and raw coal screening plant (G10-D159) shall be combined when determining applicability and share the common facility ID Number of 025-00068.

The existing wet wash coal preparation plant (G10-D085F) and raw coal screening plant (G10-D159) will have a combined estimated potential to discharge controlled emissions of 2,274.53 TPY of PM, of which 692.95 TPY will be PM_{10}. The existing wet wash coal preparation plant and raw coal screening plant will have a combined estimated potential to emit (open storage piles constructed or modified after May 27, 2009 and point sources combined) of 195.45 TPY of PM, of which 92.26 TPY will be PM_{10}. Refer to the following table for a complete summary of Greenbrier Smokeless Coal Mining, LLC's existing wet wash coal preparation plant (G10-D085F) and raw coal screening plant's (G10-D159) potential to discharge:

- Combined Emissions Totals - Greenbrier Smokeless Coal Mining, LLC	Controlled PM Emissions		Controlled PM_{10} Emissions	
	lb/hour	TPY	lb/hour	TPY
Fugitive Emissions				
G10-D159 - Raw Coal Screening Plant	65.71	287.87	19.01	83.27
G10-D85F - Wet Wash Coal Prep Plant	409.60	1,794.38	118.45	518.91
Fugitive Emissions Total	*475.31*	*2,082.25*	*137.46*	*602.18*
Point Source Emissions				
G10-D159 - Raw Coal Screening Plant	5.00	20.90	2.35	9.84
G10-D85F - Wet Wash Coal Prep Plant	42.47	171.38	20.39	80.73
Point Source Emissions Total	*47.47*	*192.28*	*22.74*	*90.77*
COMBINED EMISSIONS TOTAL	**522.78**	**2,274.53**	**160.20**	**692.95**

REGULATORY APPLICABILITY

NESHAPS and PSD have no applicability to the modified facility. The modification of Greenbrier Smokeless Coal Mining, LLC's existing wet wash coal preparation plant is subject to the following state and federal rules:

45CSR5 *To Prevent and Control Air Pollution from the Operation of Coal Preparation Plants, Coal Handling Operations and Coal Refuse Disposal Areas*

The wet wash coal preparation plant is subject to the requirements of 45CSR5 because it meets the definition of "Coal Preparation Plant" found in subsection 45CSR5.2.4. The facility should be in compliance with Section 3 (less than 20% opacity) and Section 6 (fugitive dust control system and dust control of the premises and access roads) when the particulate matter control methods and devices proposed are in operation.

45CSR13 *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation*

The proposed modification of this wet wash coal preparation plant is subject to the requirements of 45CSR13 because it involves the construction of two (2) diesel fired emergency generators, which are defined as affected facilities and subject to 40 CFR 60 NSPS Subpart IIII. The applicant has submitted an application for a modification registration. The applicant published a Class I legal advertisement in *The West Virginia Daily News* on August 25, 2015 and submitted $500 for the General Permit application fee and $1,000 for the NSPS fee.

45CSR16 *Standards of Performance for New Stationary Sources*
40 CFR 60 *Subpart Y: Standards of Performance for Coal Preparation and Processing Plants*

This wet wash coal preparation plant is subject to 40 CFR 60 Subpart Y because it was constructed and modified after October 24, 1974 and processes more than 200 tons of coal per day. The proposed modification does not include the construction or modification of any equipment, belt conveyors or open storage piles which are defined as affected facilities in 40 CFR 60 Subpart Y. Therefore, this proposed modification is *not* subject to 45CSR16, which incorporates by reference 40 CFR 60 Subpart Y - Standards of Performance for Coal Preparation Plants, but the existing affected facilities remain subject to the provisions. The facility should be in compliance with Section 254(a) (less than 20% opacity for coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal which was constructed, re-constructed or modified on or before April 28, 2008) and Section 254(b) (less than 10% opacity for coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal which was constructed, re-constructed or modified after April 28, 2008) when the particulate matter control methods and devices proposed are in operation.

The owner or operator of an open storage pile, which includes the equipment used in the loading, unloading, and conveying operations of the affected facility, constructed, reconstructed, or modified after May 27, 2009, must prepare and operate in accordance with a submitted fugitive coal dust emissions control plan that is appropriate for the site conditions. The fugitive coal dust emissions control plan must identify and describe the control measures the owner or operator will use to minimize fugitive coal dust emissions from each open storage pile. The plan must be submitted to the Director prior to startup of the new, reconstructed or modified open storage pile.

45CSR16 Standards of Performance for New Stationary Sources
40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The provisions of Subpart IIII are applicable to owners and operators of stationary compression ignition (CI) internal combustion engines (ICE) which commence construction after July 11, 2005 and are manufactured after April 1, 2006. For the purposes of Subpart IIII, the date that construction commences is the date the engine is ordered by the owner or operator.

Generator Gen Set-2 is a 2013 Cummins model QSX15-G9 engine rated for 755 hp (563 kW). Generator Gen Set-2 is a four stroke diesel and is EPA Tier 4 Certified. In accordance with § 60.4200 (2), this engine is subject to Subpart IIII because it commenced construction after July 11, 2005 and was manufactured after April 1, 2006.

Generator Gen Set-3 is a 2009 Caterpillar model 4FN02046 and family 1HZ00969 engine rated for 2,628 hp (1,960 kW). Generator Gen Set-3 is a four stroke diesel and is EPA Tier 2 Certified and manufacturer's certified emission factors were provided in application G10-D085A. In accordance with § 60.4200 (2), this engine is subject to Subpart IIII because it commenced construction after July 11, 2005 and was manufactured after April 1, 2006.

Generator Gen Set-4 is a 2009 Caterpillar model C4.4 engine rated for 173.5 hp (130 kW). Generator Gen Set-4 is a four stroke diesel and is EPA Tier 3 Certified. In accordance with § 60.4200 (2), this engine is subject to Subpart IIII because it commenced construction after July 11, 2005 and was manufactured after April 1, 2006.

In accordance with § 60.4207(b), "Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel."

40 CFR 89 Control of Emissions From New and In-use Nonroad Compression-Ignition Engines

This part applies to all compression-ignition nonroad engines except those specified in paragraph (b) of this section. This means that the engines for which this part applies include but are not limited to compression-ignition engines exempted from the requirements of 40 CFR Part 92 by 40 CFR 92.207 or 40 CFR Part 94 by 40 CFR 94.907. This part applies as specified in 40 CFR part 60 subpart IIII, to compression-ignition engines subject to the standards of 40 CFR part 60, subpart IIII.

45CSR16 Standards of Performance for New Stationary Sources
40 CFR 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Greenbrier Smokeless Coal Mining, LLC's Gen Set-1 is ~~not~~ subject to this subpart because construction commenced after June 12, 2006 and Gen Set-1 is an emergency engine which was manufactured on or after January 1, 2009.

Engine Gen Set-1 is a 2009 Generac OHVI V-Twin engine rated for 173.5 hp (130 kW). Generator Gen Set-4 is a four stroke diesel. In accordance with § 60.4200 (2), this engine is subject to Subpart IIII because it commenced construction after July 11, 2005 and was manufactured after April 1, 2006.

40 CFR 63 Subpart ZZZZ: National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

According to the RICE NESHAP Summary of Requirements, new and reconstructed stationary non-emergency compression ignition engines constructed on or after June 12, 2006 and located at an area source of HAP are subject to 40 CFR 60 Subpart ZZZZ, however, the only requirements that apply are those required under 40 CFR part 60, Subpart IIII.

45CSR30 Requirements for Operating Permits

In accordance with 45CSR30 Major Source Determination, the existing wet wash coal preparation plant and raw coal screening plant are not listed in 45CSR30 subsection 2.26.b as one of the categories of stationary sources which must include fugitive emissions (open storage piles constructed or modified on or before May 27, 2009 and haulroads) when

determining whether it is a major stationary source for the purposes of § 302(j) of the Clean Air Act. The existing wet wash coal preparation plant and raw coal screening plant's *combined* potential to emit will be 92.26 TPY for PM_{10} (open storage piles constructed or modified after May 27, 2009 and point sources combined), which is less than the 45CSR30 threshold of 100 TPY of a regulated air pollutant used to define a major stationary source. Therefore, the existing wet wash coal preparation plant and raw coal screening plant will be a nonmajor source subject to 45CSR30. The existing wet wash coal preparation plant and raw coal screening plant will not subject to the permitting requirements of 45CSR30 and will be classified as a deferred source.

The proposed modification of Greenbrier Smokeless Coal Mining, LLC's wet wash coal preparation plant and railcar loadout is <u>not</u> subject to the following state and federal rules:

45CSR14 Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration

In accordance with 45CSR14 Major Source Determination, the existing wet wash coal preparation plant and raw coal screening plant are not one of the 100 TPY stationary sources listed under the definition of "Major Stationary Source" in subsection 2.43.a. Therefore, it must have the potential to emit 250 TPY or more of any regulated pollutant to meet the definition of a major source in subsection 2.43.b. At the end of subsection 2.4.3, this facility is not listed in Table 1 - Source Categories Which Must Include Fugitive Emissions. So, fugitive emissions (from open storage piles constructed or modified on or before May 27, 2009 and haulroads) are not included when determining major stationary source applicability. The existing wet wash coal preparation plant and raw coal screening plant's *combined* potential to emit will be 195.45 TPY for PM (open storage piles constructed or modified after May 27, 2009 and point sources combined), which is less than the 45CSR14 threshold of 250 TPY for a regulated air pollutant used to define a major stationary source. Therefore, the existing wet wash coal preparation plant and raw coal screening plant are not subject to the requirements set forth within 45CSR14.

45CSR16 Standards of Performance for New Stationary Sources
40 CFR 60 Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

The proposed storage tanks T1 through T13 will not be subject to 40 CFR 60 Subpart Kb. Subpart Kb applies to each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) (19,813 gallons) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification commenced after July 23, 1984. The application indicates that the largest storage tanks T5 and T6 will have a maximum capacity of 20.82 cubic meters (m^3) (5,500 gallons), and therefore will be exempt from the General Provisions (part 60, subpart A) and from the provisions of Subpart Kb.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

A toxicity analysis was not performed because the primary pollutants that will be emitted from this facility are PM (particulate matter) and PM_{10} (particulate matter less than 10 microns in diameter), which are non-toxic pollutants.

Small amounts of non-criteria regulated hazardous or toxic air pollutants such as benzene, ethylbenzene, toluene, xylenes and formaldehyde may be emitted when fuels are combusted in reciprocating internal combustion engines. Due to the typically small amounts emitted, these non-criteria regulated hazardous/toxic pollutants should not adversely impact an applicable ambient air quality standard or cause or contribute to degradation of public health and welfare.

AIR QUALITY IMPACT ANALYSIS

Air dispersion modeling was not performed due to the size and location of this facility and the extent of the proposed modification. This facility is located in Greenbrier County, WV, which is currently in attainment for PM (particulate matter) and PM_{10} (particulate matter less than 10 microns in diameter). This modified facility will remain a minor source as defined by 45CSR14, therefore, an air quality impact analysis is not required.

GENERAL PERMIT ELIGIBILITY

The proposed modification of this facility meets the applicability criteria (Section 2.3), siting criteria (Section 3.1) and limitations and standards (Section 5.1) as specified in General Permit G10-D.

All registered facilities under Class II General Permit G10-D are subject to Sections 1.0, 1.1, 2.0, 3.0 and 4.0.

MONITORING OF OPERATIONS

The coal processing and conveying equipment and storage areas should be observed to make sure that the facility is meeting the applicable visible emission standards of 40 CFR 60, Subpart Y. Visible emissions from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal constructed, re-constructed or modified on or before April 28, 2008 shall not exceed 20 percent (20%) opacity as stated in 40 CFR 60.254(a). Visible emissions from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal constructed, re-constructed or modified after April 28, 2008 shall not exceed 10 percent (10%) opacity as stated in 40 CFR 60.254(b). Equipment used in the loading, unloading, and conveying operations of open storage piles are not subject to the maximum 10% opacity limitation.

The owner or operator of an open storage pile, which includes the equipment used in the

loading, unloading, and conveying operations of the affected facility, constructed, reconstructed, or modified after May 27, 2009, must prepare and operate in accordance with a submitted fugitive coal dust emissions control plan that is appropriate for the site conditions. The fugitive coal dust emissions control plan must identify and describe the control measures the owner or operator will use to minimize fugitive coal dust emissions from each open storage pile. The plan must be submitted to the Director prior to startup of the new, reconstructed or modified open storage pile.

RECOMMENDATION TO DIRECTOR

The information contained in this general permit registration for a modification indicates that compliance with all applicable regulations should be achieved when all of the proposed particulate matter control methods are in operation. Due to the location, nature of the process, and control methods proposed, adverse impacts on the surrounding area should be minimized. No comments were received during the comment period. Therefore, the granting of a General Permit G10-D registration to Greenbrier Smokeless Coal Mining, LLC for the modification of their existing wet wash coal preparation plant and railcar loadout located near Rupert, Greenbrier County, WV is hereby recommended.

Daniel P. Roberts, Engineer Trainee
NSR Permitting Section

February 23, 2017
Date

Decrease in Emissions — DRR.

G10 Emission Calculation Spreadsheet - Revised 9/12/14

EMISSIONS SUMMARY

Name of applicant: Greenbrier Smokeless, LLC
Name of plant: Mountaineer I PP - G10-D085G
Date: 2-Feb-17

Particulate Matter or PM (for 45CSR14 Major Source Determination)

	Uncontrolled PM		Controlled PM	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Open Storage Pile Emissions	0.00	0.00	0.00	0.00
Unpaved Haulroad Emissions	0.00	0.00	0.00	0.00
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	**0.00**	**0.00**	**0.00**	**0.00**
POINT SOURCE EMISSIONS				
Equipment Emissions	(60.00)	(262.80)	(6.00)	(26.28)
Transfer Point Emissions	(1.22)	(5.34)	(0.12)	(0.53)
Point Source Emissions Total*	**(61.22)**	**(268.14)**	**(6.12)**	**(26.81)**
Facility Emissions Total	**(61.22)**	**(268.14)**	**(6.12)**	**(26.81)**

*Note: Point Source Total Controlled PM TPY emissions is used for 45CSR14 Major Source determination (see below)

***Facility Potential to Emit (PTE) (Baseline Emissions) = -26.81**

(Based on Point Source Total controlled PM TPY emissions from above) ENTER ON LINE 26 OF APPLICATION

Particulate Matter under 10 microns, or PM-10 (for 45CSR30 Major Source Determination)

	Uncontrolled PM-10		Controlled PM-10	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	0.00	0.00	0.00	0.00
Unpaved Haulroad Emissions	0.00	0.00	0.00	0.00
Paved Haulroad Emissions	0.00	0.00	0.00	0.00
Fugitive Emissions Total	**0.00**	**0.00**	**0.00**	**0.00**
POINT SOURCE EMISSIONS				
Equipment Emissions	(28.20)	(123.52)	(2.82)	(12.35)
Transfer Point Emissions	(0.58)	(2.53)	(0.06)	(0.25)
Point Source Emissions Total*	**(28.78)**	**(126.04)**	**(2.88)**	**(12.60)**
Facility Emissions Total	**(28.78)**	**(126.04)**	**(2.88)**	**(12.60)**

*Note: Point Source Total Controlled PM-10 TPY emissions is used for 45CSR30 Major Source determination

INPUTS

Include all information for each emission source and transfer point as listed in the permit application.

G10 Emission Calculation Spreadsheet - Revised 9/12/14

Name of applicant: Greenbrier Smokeless, LLC
Name of facility: Mountaineer I PP - G10-D085G
Date: 2-Feb-17

1. CRUSHING AND SCREENING (including all primary and secondary crushers and screens)

1a. PRIMARY CRUSHING

Primary Crusher ID Number	Description	Maximum Material Processing Capacity		Control Device ID Number	Control Efficiency %
		TPH	TPY		

1b. SECONDARY AND TERTIARY CRUSHING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity		Control Device ID Number	Control Efficiency %
		TPH	TPY		

1c. SCREENING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity		Control Device ID Number	Control Efficiency %
		TPH	TPY		
	SCREEN TO BE REMOVED				
SS-07	Direct Ship Screen - never constructed	-600	-5,256,000	FW	90

2. *TRANSFER POINTS (including all conveyor transfer points, equipment transfer points etc.)*

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)	7	

Transfer Point ID No.	Transfer Point Description Include ID Numbers of all conveyors, crushers, screens, stockpiles, etc. involved	Material Moisture Content %	Maximum Transfer Rate TPH	Maximum Transfer Rate TPY	Control Device ID Number	Control Efficiency %
	TRANSFER POINTS TO BE REMOVED					
TP-55	SS-07 to BC-18	5	(600)	(5,256,000)	TC-FW	90
TP-56	SS-07 to CR-03	5	(600)	(5,256,000)	TC-FW	90

3. WIND EROSION OF OPEN STORAGE PILES *(including all raw coal, clean coal, refuse, etc.)*

P =	number of days per year with precipitation >0.01 inch	
f =	percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height	20

*see Storage Piles tab

Source ID No.	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %

4. UNPAVED HAULROADS *(including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

s =	silt content of road surface material (%)	10
P =	number of days per year with precipitation >0.01 inch	157

*see Unpaved Haulroads tab

Item Number	Description	Number of wheels	Mean Vehicle Weight(tons)	Miles per Round Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %

5. INDUSTRIAL PAVED HAULROADS *(including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

sL =	road surface silt loading, (g/m^2)	8
P =	number of days per year with precipitation >0.01 inch	157

*see Industrial Paved Haulroads tab

Item Number	Description	Average Vehicle Weight (tons)	Miles per Round Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %

Greenbrier Smokeless Coal Mining, LLC
Mountainer I Preparation Plant

Potesta & Associates, Inc
Project No. 0101-10-0078-001

By: CCS
Date: 08/11/10

Checked By: PEW
Date: 09/09/10

Generac Model 05523 (17 kW)

Emission Unit ID: Gen Set-1
Engine Specifications

Manufacturer:	Generac	
Engine Type:	OHVI V-Twin	
Displacement:	992	cc
Fuel Consumption:	2.57	gallons/hour
	1,285.00	gallons/year
Assumed Heating Value of Propane:	92,000	Btu/gallon
Maximum Fuel Input:	0.24	MMBtu/hour

Hours Per Year[4] = 500

Criteria Pollutant	Emission Factor[1] ($lb/10^3$ gal)	Emissions (lbs/hour)	Emissions (tons/year)
NO_X	13.0	0.033	0.01
TOC (VOC)	1.0	0.003	0.001
CO	7.5	0.019	0.005
PM/PM10[3]	0.7	0.002	0.0005
SO_2[2]	NA	NA	NA

Checking 144 lb/day limit: highest Criteria Pollutant Value = **1** lbs/day

Notes:

1. AP-42 table 1.5.1.
2. SO2 emission factor is = 0.1 × sulfur content of fuel in gr/100 cu.ft.
According to MSDS there is no sufur in HD-5 Propane.
3. PM10 is assumed to be equal to PM.
4. 500 hours per Office of Air Quality Planning and Standards Memorandum "Calculating Potential to Emit (PTE) for Emergency Generators", September 6, 1995.

By: CCS
Date: 08/11/10

Checked By: PEW
Date: 09/09/10

Caterpillar 1HZ00969 Diesel Generator Set (EPA Tier I Certified)

Emission Unit IDs: Gen Set-3

Engine Specifications

Manufacturer:	Caterpillar
Model Number:	4FN02046
Fuel Consumption:	123.11 gallons/hour
	61,555.00 gallons/year
Assumed Heating Value of Diesel Fuel:	136,600 Btu/gallon
Maximum Power:	2,628 bhp
	1,960 kWm
Maximum Fuel Input:	16.82 MMBtu/hour
	Hours Per Year[7] = 500
	453.6 grams/pound
	0.746 kWm/bhp

Criteria Pollutant	Emissions		
	(g/kW-hr)[1]	(lb/hr)	(tons/year)
NO_X	8.3	35.87	8.97
HC (VOC)	0.4	1.73	0.43
CO	1.2	5.19	1.30
PM /PM_{10}[3]	0.13	0.56	0.14

Criteria Pollutant	Emission Factor (lb/MMBtu)	AP42[2] Emissions	
		(lbs/hour)	(tons/year)
SO_2	0.0505	0.85	0.21

Checking 144 lb/day limit: highest Criteria Pollutant Value = **199.20** lbs/day

Hazardous Air Pollutants (HAPs)[4]	Emission Factor (lb/MMBtu)	Emissions		TAP Limit[6] (lbs/year)	TAP Emissions (lbs/year)
		(lbs/hour)	(tons/year)		
Benzene[6]	7.76E-04	0.0131	0.0033	1000	6.55
Toluene	2.81E-04	0.0048	0.0012		
Xylenes	1.93E-04	0.0033	0.0009		
1,3-Butadiene[6]	3.91E-05	0.0007	0.0002	500	0.35
Formaldehyde[6]	7.89E-05	0.0014	0.0004	1000	0.70
Acetaldehyde	2.52E-05	0.0005	0.0002		
Acrolein	7.88E-06	0.0002	0.0001		
Naphthalene	1.30E-04	0.0022	0.0006		
	Total HAPs	0.0262	0.0069		

#2 Diesel Fuel[5] 0.05 wt% S Rounding to 4

Notes:

1. Manufacturer certified emission factors.
2. AP-42 3.4-1.
3. Assume PM10 = PM.
4. AP-42 3.4-3 except 1,3-Butadiene which is from AP-42 3.3-2.
5. Sulfer content of #2 diesel fuel based on requirements of 40CFR80.510(a).
6. Toxic Air Pollutant (TAP) 45CSR13 Table 45-13A.
7. 500 hours per Office of Air Quality Planning and Standards Memorandum "Calculating Potential to Emit (PTE) for Emergency Generators", September 6, 1995.

Gen Set - 2: 2013 Cummins QSX15-G9 **Tier 4**

Cummins	QSX15-G9		Diesel Fue	136600	BTU/gallon
	755	hp	Max Heat	1.89874	MMBtu/hr
	563	kW		500	hours/year
	13.9	gallons/hour		453	grams/lb
	6950	gallons/year			

	Source	g/kW-hr	lb/hp-hr	lb/hour	TPY
NOx	Standards	3.5		4.349916	1.087479
VOC (NMH	Standards	0.4		0.497133	0.124283
CO	Standards	3.5		4.349916	1.087479
PM/PM10	Standards	0.1		0.124283	0.031071
SOx	AP42		0.00001	0.009162	0.00229

AP42 Table 3.4-1 for Diesel Fuel

* where SOx = 0.00809*(15 ppm/10,000) for lb/hp-hr

Gen Set - 3:2009 Caterpillar 4FN02046

Caterpillar	4FN02046	1HZ00969	Diesel Fue	136600	BTU/gallon
	2628	hp	Max Heat	16.81683	MMBtu/hr
	1960	kW		500	hours/year
	123.11	gallons/hour		453	grams/lb
	61555	gallons/year			

	Source	g/kW-hr	lb/MMBtu	lb/hour	TPY
NOx	Man. Data	8.3		35.90619	8.976547
VOC	Man. Data	0.4		1.730419	0.432605
CO	Man. Data	1.2		5.191256	1.297814
PM/PM10	Man. Data	0.13		0.562386	0.140597
SO2	AP42		0.0505	0.84925	0.212312

* From info within application G10-D085A

Gen Set - 4: 2009 Caterpillar C4.4 **Tier 3**

Caterpillar	ACERT C4.4		Diesel Fue	136600	BTU/gallon
	173.5	hp	Max Heat	1.89874	MMBtu/hr
	129	kW		500	hours/year
	13.9	gallons/hour		453	grams/lb
	6950	gallons/year			

	Source	g/kW-hr	lb/hp-hr	lb/hour	TPY
NOx	Standards	4.00		1.142419	0.285605
VOC	AP42		0.00247	0.428545	0.107136
CO	Standards	5.00		1.428023	0.357006
PM/PM10	Standards	0.30		0.085681	0.02142
SOx	AP42		0.00205	0.355675	0.088919

AP42 Table 3.3-1 for Diesel Fuel

Gen Set - 1 Generac OHVI V-Twin Model 05523

Generac	OHVI V-Twi	Model 05523	Propane		BTU/gallon
	32	hp	Max Heat	0	MMBtu/hr
	24	kW		500	hours/year
	2.57	gallons/hour		453	grams/lb
	1285	gallons/year			

	Source	lb/10^3 gal	lb/hour	TPY
NOx	AP42	13	0.03341	0.008353
VOC	AP42	1	0.00257	0.000643
CO	AP42	7.5	0.019275	0.004819
PM/PM10	AP42	0.7	0.001799	0.00045
SO2	AP42	N/A	0	0

* From info with+AG27in application G10-D085A

	Emissions Summary	
	lb/hr	***TPY***
NOx	*41.43193*	*10.35798*
VOC	*2.161534*	*0.540383*
CO	*10.98847*	*2.747118*
PM/PM10	*0.77415*	*0.193537*
SO2	*1.214087*	*0.303522*

Gen Set-1: 2009 Generac OHVI V-Twin

CRITERIA POLLUTANTS

AP-42 5th Edition Section 3.2 Natural Gas Fired Reciprocating Engines (7/00) - Table 3.2-2

Diesel Fuel Engine	32	hp	23.862 kW
Max. Hours of Operation	500	hrs/year	
Heating Value for diesel	1020	Btu/scf	
Maximum diesel usage	2.57	gal/hour	

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

Pollutant		Emission Factor (lb/hp-hr)	Emission Factor (lb/MMBtu)	Rating	*from lb/hp-hr* lb/hour	*from lb/hp-hr* TPY	*from lb/MMBtu* lb/hour	*from lb/MMBtu* TPY
NOx	AP42		4.08	B	0.0000	0.000	*0.0014*	0.0004
CO	AP42		0.317	C	0.0000	0.000	*0.0001*	3E-05
SO2	AP42		0.000588	A	0.0000	0.000	*2E-07*	5E-08
PM	AP42		0.00991	D	0.0000	0.000	*3E-06*	9E-07
PM10	AP42		0.0000771	D			*3E-08*	7E-09
VOC	AP42		0.118	C	0.0000	0.000	*4E-05*	1E-05

* where SOx = 0.00809*(15 ppm/1,000,000) for lb/hp-hr and SOx = 1.01*(15 ppm/1,000,000) for lb/MMBtu

HAZARDOUS AIR POLLUTANTS

AP-42 5th Edition Section 3.2 Natural Gas Fired Reciprocating Engines (7/00) - Table 3.2-2
45CSR30 Table 45-30A Hazardous Air Pollutants

Heating Value for diesel	1020	Btu/scf
Maximum diesel usage	2.57	gal/hour

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

CAS NO.		Emission Factor (lb/MMBtu)	Rating	lb/hour	TPY	Emission Factor (lb/hp-hr)	lb/hour	TPY
71-43-2	Benzene	0.00044	A	0.15419	0.03855		0	0
108-88-3	Toluene	0.000408	B	0.00078	0.00019		0	0
	Xylenes	0.000184	B	0.00035	8.8E-05		0	0
50-00-0	Formaldehyde	0.0528	A	0.10057	0.02514		0	0
	Acetaldehyde	0.00836	A	0.01592	0.00398		0	0
	Acrolein	0.00514	A	0.00979	0.00245		0	0
91-20-3	Naphthalene	0.0000744	C	0.00014	3.5E-05		0	0
			Total HAPs	**0.28174**	**0.07044**		**0**	**0**

GREENBRIER SMOKELESS COAL MINING, LLC **Mountaineer I Preparation Plant**
Facility ID No. 025-00058 **G10-D085F**

Gen Set -2: 2013 Cummins QSX15-G9 755 hp

2/21/2017

CRITERIA POLLUTANTS

AP-42 5th Edition Section 3.4 Large Stationary Diesel And All Stationary Dual-fuel Engines (10/96)
- Table 3.4-1 for Diesel Fuel

Diesel Fuel Engine	755	hp	563.003 kW
Max. Hours of Operation	500	hrs/year	
Heating Value for diesel	137030	Btu/gal	
Maximum diesel usage	13.9	gal/hour	

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

Pollutant		Emission Factor (lb/hp-hr)	Emission Factor (lb/MMBtu)	Rating	*from lb/hp-hr* lb/hour	*from lb/hp-hr* TPY	*from lb/MMBtu* lb/hour	*from lb/MMBtu* TPY
NOx	AP42	0.02400	3.2	D	18.1200	4.530	*6.09509*	1.5238
CO	AP42	0.00550	0.85	D	4.1525	1.038	*1.61901*	0.4048
SOx *	AP42	0.00001	0.001515	D	0.0092	0.002	*0.00289*	0.0007
PM	AP42	0.00070	0.1	D	0.5285	0.132	*0.19047*	0.0476
TOC	AP42	0.00071	0.09	D	0.5323	0.133	*0.17142*	0.0429

* where SOx = 0.00809*(15 ppm/10,000) for lb/hp-hr and SOx = 1.01*(15 ppm/10,000) for lb/MMBtu

HAZARDOUS AIR POLLUTANTS

AP-42 5th Edition Section 3.3 Gasoline and Diesel Industrial Engines (10/96) - Table 3.3-2
45CSR30 Table 45-30A Hazardous Air Pollutants

From application, based on EPA WebFIRE/AP-42 3.4-1 assumptions on diesel	19300	Btu/lb
denisty	7.1	lb/gal
Heating Value for diesel	137030	BTU/US gal
Maximum diesel usage	13.9	gal/hour
Average brake-specific fuel consumption (BSFC)	7000	Btu/hp-hr

Fr

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

CAS NO.		Emission Factor (lb/MMBtu)	Rating	lb/hour	TPY	Emission Factor (lb/hp-hr)	lb/hour	TPY
71-43-2	Benzene	0.000776	E	0.0015	0.00037	5.4E-06	0.0041	0.001
108-88-3	Toluene	0.000281	E	0.0005	0.000134	2E-06	0.00149	0.0004
	Xylenes	0.000193	E	0.0004	9.19E-05	1.4E-06	0.00102	0.0003
50-00-0	Formaldehyde	0.0000789	E	0.0002	3.76E-05	5.5E-07	0.00042	0.0001
	Acetaldehyde	0.0000252	E	5E-05	1.2E-05	1.8E-07	0.00013	3E-05
	Acrolein	0.00000788	E	2E-05	3.75E-06	5.5E-08	4.2E-05	1E-05
91-20-3	Naphthalene	0.00013	E	0.0002	6.19E-05	9.1E-07	0.00069	0.0002
			Total HAPs	**0.0028**	**0.00071**		**0.00789**	**0.002**

Gen Set-3: 2009 Caterpillar FN02046 2628 hp

CRITERIA POLLUTANTS

AP-42 5th Edition Section 3.4 Large Stationary Diesel And All Stationary Dual-fuel Engines (10/96)
- Table 3.4-1 for Diesel Fuel

Diesel Fuel Engine	2628	hp	1959.7 kW
Max. Hours of Operation	500	hrs/year	
Heating Value for diesel	137030	Btu/gal	
Maximum diesel usage	13.9	gal/hour	

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

Pollutant		Emission Factor (lb/hp-hr)	Emission Factor (lb/MMBtu)	Rating	*from lb/hp-hr* lb/hour	*from lb/hp-hr* TPY	*from lb/MMBtu* lb/hour	*from lb/MMBtu* TPY
NOx	AP42	0.02400	3.2	D	63.0720	15.768	*6.0951*	1.5238
CO	AP42	0.00550	0.85	D	14.4540	3.614	*1.619*	0.4048
SOx	AP42	0.00001	0.001515	D	0.0319	0.008	*0.0029*	0.0007
PM	AP42	0.00070	0.1	D	1.8396	0.460	*0.1905*	0.0476
TOC	AP42	0.00071	0.09	D	1.8527	0.463	*0.1714*	0.0429

* where SOx = 0.00809*(15 ppm/10,000) for lb/hp-hr and SOx = 1.01*(15 ppm/10,000) for lb/MMBtu

HAZARDOUS AIR POLLUTANTS

AP-42 5th Edition Section 3.3 Gasoline and Diesel Industrial Engines (10/96) - Table 3.3-2
45CSR30 Table 45-30A Hazardous Air Pollutants

ɔm application, based on EPA WebFIRE/AP-42 3.4-1 assumptions on diesel

	19300	Btu/lb	Frc
denisty	7.1	lb/gal	
Heating Value for diesel	137030	BTU/US gal	
Maximum diesel usage	13.9	gal/hour	
Average brake-specific fuel consumption (BSFC)	7000	Btu/hp-hr	

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

CAS NO.		Emission Factor (lb/MMBtu)	Rating	lb/hour	TPY	Emission Factor (lb/hp-hr)	lb/hour	TPY
71-43-2	Benzene	0.000776	E	0.00148	0.00037	5.4E-06	0.0143	0.0036
108-88-3	Toluene	0.000281	E	0.00054	0.00013	2E-06	0.0052	0.0013
	Xylenes	0.000193	E	0.00037	9.2E-05	1.4E-06	0.0036	0.0009
50-00-0	Formaldehyde	0.0000789	E	0.00015	3.8E-05	5.5E-07	0.0015	0.0004
	Acetaldehyde	0.0000252	E	4.8E-05	1.2E-05	1.8E-07	0.0005	0.0001
	Acrolein	7.88E-06	E	1.5E-05	3.8E-06	5.5E-08	0.0001	4E-05
91-20-3	Naphthalene	0.00013	E	0.00025	6.2E-05	9.1E-07	0.0024	0.0006
			Total HAPs	0.00284	0.00071		0.0274	0.0069

Gen Set-4: 2009 Caterpillar C4.4 ACERT 173.5 hp

CRITERIA POLLUTANTS

AP-42 5th Edition Section 3.3 Gasoline and Diesel Industrial Engines (10/96) - Table 3.3-1 for Diesel Fuel

Diesel Fuel Engine	173.5	hp	129.38 kW
Max. Hours of Operation	500	hrs/year	
Heating Value for diesel	137030	Btu/gal	
Maximum diesel usage	13.9	gal/hour	

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

Pollutant		Emission Factor (lb/hp-hr)	Emission Factor (lb/MMBtu)	Rating	from lb/hp-hr lb/hour	from lb/hp-hr TPY	from lb/MMBtu lb/hour	from lb/MMBtu TPY
NOx	AP42	0.031	4.41	D	5.3785	1.34463	*8.3998*	2.1
CO	AP42	0.00668	0.95	D	1.15898	0.28975	*1.8095*	0.4524
SOx	AP42	0.00205	0.29	D	0.355675	0.08892	*0.5524*	0.1381
PM/PM10	AP42	0.0022	0.31	D	0.3817	0.09543	*0.5905*	0.1476
TOC	AP42	0.00247	0.35	D	0.428545	0.10714	*0.6667*	0.1667

HAZARDOUS AIR POLLUTANTS

AP-42 5th Edition Section 3.3 Gasoline and Diesel Industrial Engines (10/96) - Table 3.3-2
45CSR30 Table 45-30A Hazardous Air Pollutants

)m application, based on EPA WebFIRE/AP-42 3.4-1 assumptions on diesel

denisty	7.1	lb/gal
Heating Value for diesel	137030	BTU/US gal
Maximum diesel usage	13.9	gal/hour
Average brake-specific fuel consumption (BSFC)	7000	Btu/hp-hr

E (hourly) = Emission Factor (lb/hp-hr) * Horse Power (hp)
E (annual) = Emission Factor (lb/hp-hr) * Horse Power (hp) * Maximum Hours of Operation * 1 ton per 2000 lb

CAS NO.		Emission Factor (lb/MMBtu)	Rating	lb/hour	TPY	Emission Factor (lb/hp-hr)	lb/hour	TPY
71-43-2	Benzene	0.000933	E	0.0018	0.000444	6.5E-06	0.0011	0.0003
108-88-3	Toluene	0.000409	E	0.0008	0.000195	2.9E-06	0.0005	0.0001
	Xylenes	0.000285	E	0.0005	0.000136	2E-06	0.0003	9E-05
	Formaldehyde	0.00118	E	0.0022	0.000562	8.3E-06	0.0014	0.0004
50-00-0	Acetaldehyde	0.000767	E	0.0015	0.000365	5.4E-06	0.0009	0.0002
	Acrolein	9.25E-05	E	0.0002	4.4E-05	6.5E-07	0.0001	3E-05
	Naphthalene	8.48E-05	E	0.0002	4.04E-05	5.9E-07	0.0001	3E-05
91-20-3	1,3-Butadiene	3.91E-05	E	7E-05	1.86E-05	2.7E-07	5E-05	1E-05
			Total HAPs	**0.0071**	**0.001786**		**0.0046**	**0.0011**

	lb/hour	TPY	lb/hour	TPY
NOx	86.5705	21.6426	20.58999	5.1475
CO	19.7655	4.9414	5.0475	1.26188
SOx *	0.3967	0.0992	0.558139	0.13953
PM	2.7498	0.6875	0.971406	0.24285
TOC	2.8136	0.7034	1.0095	0.25238
Benzene	0.1589	0.0397	0.173699	0.04342
Toluene	0.0026	0.0007	0.007928	0.00198
Xylenes	0.0016	0.0004	0.005267	0.00132
Formaldehyde	0.1031	0.0258	0.103871	0.02597
Acetaldehyde	0.0175	0.0044	0.017452	0.00436
Acrolein	0.0100	0.0025	0.010089	0.00252
Naphthalene	0.0008	0.0002	0.003323	0.00083
1,3-Butadiene	7.4474E-05	1.8619E-05	4.75E-05	1.2E-05
TOTAL HAPs	**0.2946**	**0.0737**	**0.3217**	**0.0804**